Deer Diseases and Parasites

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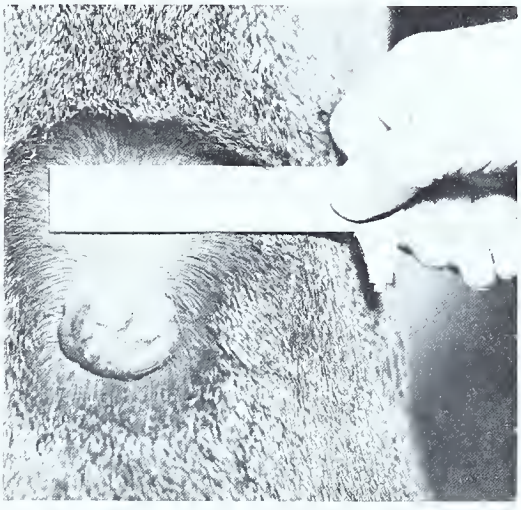
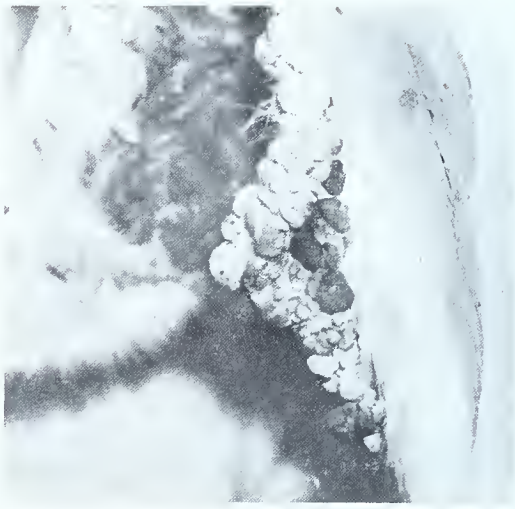
Deer Are Lousy . . .





FIBROMA OR PAPILLOMA is a disease that plagued white-tailed deer in Pennsylvania. Both of these pictures are of the same deer. Although presenting an unsightly appearance and possibly handicapping the deer, it does not affect the edibility of the deer.

Diseases and Parasites of the Pennsylvania White-tailed Deer

By Stanley E. Forbes
Game Biologist

"HOW ya doin'?" is a greeting with which most of us are familiar, probably using it many times a day. Depending on our luck that particular day, this greeting might be parried with "Not so good" or "Lousy." Both the question and the answer might cover a multitude of things.

If deer could converse and would make use of the same approach, this answer might not be far amiss. Why can we make that statement? Well, it's a fact. Deer are lousy. Examinations of deer throughout the year show that, although the herd as a whole is relatively free of disease, the most common annoyance to the individual is being infested with lice. Let's discuss for a moment some of the things that may plague the deer.

The purpose of this discussion is not to scare or alarm the sportsman, but rather to better acquaint him with some of the trials and tribulations of his quarry. This discussion is not intended to cover all ailments that can or do plague deer, but only those that have been encountered in the course of our normal field work.

Because of the specialization involved in doing pathological work on wild animals, few people qualify to do this work. As a result, in this state as in most other states, pathological work is done by a few interested individuals having the required background in veterinary training, but who may be lacking in specific training and adequate information on diseases and parasites of wild animals. In Pennsylvania, we have been most fortunate in having the full cooperation of two

such interested individuals, Dr. H. W. Dunne and Dr. David C. Kradel of the Animal Disease Laboratory, Pennsylvania State University.

The "enemies" of deer might be placed into two broad categories: specific diseases and miscellaneous condition. Discovery of a pathological condition usually has been secondary to determining the cause of death of most animals that have been brought to the laboratory for examination.

Warts Do Not Harm Meat

Disease may he broken down further into three types, depending on cause: viral, bacterial and parasitic. Although we do not consider disease as posing a serious threat to the deer population at this time, it is necessary that we constantly be on the alert. Spot checks are being made regularly of all animals being made availahle to us. It is probable that sportsmen have been aware of the effects of disease in deer at one time or another. Perhaps one of the virus types has been most frequently observed, not because of its frequency of occurrence but because of its striking effeets. During the legal open season on deer, many sportsmen have ohserved deer with "warty" growths. These are known as papilloma or fibromas which, although skin tumors, are generally considered benign or nonmalignant. They do not affect the edibility of the meat nor are they harmful to man except perhaps to make him lose his appetite because of their distasteful appearance. They are concentrated usually around the region of the face, eyelids and lips of the deer, but may be found on other portions of the body also. Although the presence of these tumors is not considered fatal, death may occur as a result of interference with breathing, seeing, or eating. In a few cases, bruising or laceration of the warty growth may be followed by a bacterial infection which may result in the death of the animal. Specimens having these warty growths have been taken from most parts of the state.

Lipoma, a nonmalignant fatty tumor, has been identified in at least one specimen collected within this state. The fatty tumors were present throughout the mesenteric and kidney region.

Shipping Fever Outbreaks

Known losses due to disease caused by bacteria have hcen few; but its true extent probably cannot be evaluated. Several years ago, the eastern part of the country suffered an outbreak of an unidentified disease causing severe localized mortality in deer populations. Although it is known that southeast Pennsylvania was having deer mortality occurring during this time, only one deer carcass was obtained in a condition suitable for necropsy. This deer showed symptoms of "Hemorrhagic Septicemia," a generalized baeterial infection found in livestock and frequently known as "shipping fever." Outbreaks of this disease have occurred periodically in many locations throughout the country, and have hcen responsible for some serious deer mortality in many western states.

Workers in New Jersey finally discovered that the mysterious disease causing the extensive deer mortality in the East was due to a virus infection. The disease was labeled "Enzootic Hemorrhagic Disease of Deer." Whether or not any of the deer mortality occurring in Pennsylvania at this time was caused by this virus has never been established.

Parasites Uncomfortable, Not Fatal

Parasites probably constitute the greatest single source of irritation to deer; and, although they are not considered generally as being a serious problem, they probably cause great annoyance or discomfort to deer. Several types of parasites may infest deer. For convenience they may be classed as internal and external.

One internal parasite which deer may harbor is a protozoan animal called Coccidia. This is a small tissue

parasite which is found in many animals including livestock. It is of minor clinical importance in many, but can be a serious affliction of lower animals, particularly cattle.

It produces severe lesions of the intestinal tract and liver. Only one case has been observed in deer in Pennsylvania.

Liver flukes are common parasites of deer but only in a few instances do they appear in such numbers as to cause serious harm to the deer. They do not affect the edibility of the meat and are harmless to man. They are much more common to livestock where they may cause "liver rot" and sometimes result in serious losses of livestock, particularly sheep. They require an alternate host, a snail, to complete their life cycle which is perhaps the reason for the incidence of the parasite being more frequent in areas of poorly drained soils.

Tapeworms Seldom Cause Mortality

Tapeworms are flat, ribbon-like worms that live in the small intestine of deer; and, although not numerous (seldom more than 3 or 4) may reach a length of several feet each. Severe infestations may cause deer to be in poor physical shape but seldom cause mortality.

Stomach worms are round worms found within the digestive system. They are primarily blood suckers and, when present in large numbers, may cause serious anomia or other digestive irregularities. They infest other ruminant animals such as moose, antelope, and domestic livestock. The incidence of these parasites varies depending upon the distribution of the animals. The extent of the infestations in deer of this state is not known, nor have there been any known losses to this parasite. The reason for lesser infestation in deer than livestock may be that the deer are primarily browsing animals whereas cattle and other ruminants are largely grazing animals; the opportunity for infection is less.

Lungworm May Be Most Common

Lungworms are small, whitish colored worms that are found in the trachea and air spaces in the lungs. Heavy infestations can cause severe damage to the lungs and may result in death from complications such as pneumonia. It has been thought by some that part of the life cycle of the lungworm is spent in or near the brain. Cranial worms have been found in as much as 80 per cent of deer examined here, and as much as 100 per cent of the deer examined in some parts of the South. The deer lungworm was found to be the most common internal parasite of deer in New York State, and has been found in many of the deer examined in this state. Although the cattle lungworm is sometimes found in deer, its occurrence is not as frequent as that of the deer lungworm.

Esophageal or throat worms have been seen in numerous deer brought into the laboratory at Penn State University for necropsy. These parasites imbed themselves in the mucosa of the esophagus, and the infestation in animals observed has usually been light. However, in one case the reaction to a heavy infestation of these worms was so severe as to seriously impair swallowing and which definitely was contributory to the mortality of the deer.

Eye worms, which only recently have been discovered within the state and which previously had been reported in California, cause blindness of the animal. Its occurrence is rare apparently.

Foot worms are slender round worms, only a few inches long, that are usually found coiled along the ligaments of the leg or under the skin of the foot near the hoof. Little is known about this parasite, how it spreads or what may be the results of infection; but what few cases have been observed in Pennsylvania have revealed no serious pathological results. The life cycle of the parasite is

unknown but it is believed that a blood-sucking fly is the immediate host.

Nasal flies, generally known as bot-flies, lay eggs on the facial hair and about the nose of the deer. When these eggs hatch the young, known as grubs, make their way into the nasal and sinus passages where they mature. In the spring, after reaching a length of about one inch, they are coughed up or sneezed out by the deer to incubate for a month or two in the ground. Thereafter they emerge as adults and begin their life cycle anew. Deer are commonly afflicted with these parasites but seldom do they reach a serious level. Curiously enough during winters when the herd suffers serious winter losses, the incidence of these grubs in the animals appears high. This is probably due to the lowered resistance of the animals. Two types, deer bot and sheep bot, infest deer.

Some Deer Are Really Lousy

External parasites are largely confined to groups known as lice, ticks, and mites. These are common parasites of Pennsylvania deer but no attempt at identification of all species has been made because of the great numbers involved and the difficulty of getting the species identification. Small lice infestation on a single deer may be great, and many sportsmen have observed large numbers of these parasites as the body heat is lost from the deer he has killed. Ticks are not observed as frequently during the hunting season, but the infestation is probably greater during the hot summer months than during the cooler weather encountered in the hunting season. Mite infestations are uncommon fortunately. The results of these parasites involve a scaly condition of the skin suggesting "mange."

Another type of external parasite sometimes observed is the louse-fly. They differ from lice in that they are able to fly from host to host. They are of little importance insofar as is known but as time goes by perhaps they will be discovered as a vector in the irruption of some disease.

The last and perhaps the broadest category of ailments can be grouped under miscellaneous pathology. One of the most common conditions observed involves abscessed molars. Excessive wear or breakage of the permanent molars and incomplete shedding of the temporary premolars contribute to this condition. This condition is observed more frequently than others perhaps because of the aging techniques employed by the Game Biologists during the hunting

ANOTHER CASE of fibroma or papilloma taken a few years ago near Frenchville. Here again this deer looks terrible, but is edible.

season. Deer are aged by the eruption, replacement and wear on the teeth of the lower jaw; and the Game Biologists examine three to five thousand specimens each season. There is more opportunity to observe this condition than any other.

Fungus infections are not common fortunately; not only are they unsightly but they may be highly communicable particularly in areas of dense population. Some of these infections cause a scaly condition of the skin, others promote growths. One of the latter types is a condition known as "Lumpy Jaw." A fungus (Actinomyces) causes the formation of tumors on the jaw, hence the term "Lumpy Jaw." One case of this has been diagnosed in this state.

Injuries Cause Diseases

Pus-forming infections (usually Staphylococcus) are not uncommon. These are infections resulting from wounds, injuries, or skin tumors and which, although they may be fatal, are not highly contagious. Usually the infection spreads through the body from some injury such as broken bones or wounds received in combat or during the hunting season and which eventually lead to abscesses of vital organs resulting in death of the animal.

Cancerous growths known as sarcomas and carcinomas have been observed infrequently. These have involved various organs of the body.

Nutritional disorders, resulting from a deficiency of one or more vitamins, have been observed in many deer. These disorders are caused wholly or in part, and are certainly aggravated by a lack of proper foods. This food shortage may manifest itself in either quantity or quality.

Rare Disease Found

One condition recently observed in a deer by Drs. Dunne and Kradel, of the Animal Disease Laboratory at Pennsylvania State University, appears worthy of note. A one-year-old female deer from Venango County, unable to stand, was submitted for examination. The cause was determined to be a shattered left hip, external signs not visible. As the animal had been submitted for necropsy, a thorough examination was made of the rest of the animal. A condition within the heart known as Zenker's Degeneration involving the heart muscle was found. At the present time it is believed that this is the first record of this occurring in deer. The condition, involving some calcification, is found in very young calves and sheep and is known as "White Muscle Disease." The cause is unknown but it is known that a vitamin deficiency contributes in part to the condition. This example points up how certain pathological conditions are discovered incidental to the examination for something more obvious.

Although this is not a complete breakdown on what can be wrong with deer, it illustrates, in a general way, some of the things that do affect deer. One thing is very evident, however; any time there are concentrations of deer, the incidence of parasitism or disease may rise considerably. Lowered resistance due to an inadequate diet on overbrowsed range, plus the opportunities for disease or parasitism to spread through a malnourished herd are largely responsible.

This is the basis for the management of the deer herd today. Which would you rather have—a large overwintering herd with lowered reproductive rate and which may be lost at any time through irruption of a disease, or a smaller and more reproductive herd that will continue to furnish recreation for many years, and one which the losses will be to the gun and not to disease?

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